Log Event A

Borehole # 10-00-01

Borehole Information

Farm : A	**Tank :** A	**Site Number :** 299-E25-57
N-Coord : 41,397	**W-Coord :** 47,565	**TOC Elevation :** 687.47
Water Level, ft : 220.6	**Date Drilled :** 6/30/1955	

Casing Record

Type : Steel-welded	Thickness : 0.322	ID, in. : 8
Top Depth, ft. : 0	Bottom Depth, ft. : 238	

Borehole Notes:

Borehole 10-00-01 was drilled in June 1955 to a depth of 150 ft with 8-in. casing. A drilling log was not available, so data from Chamness and Merz (1993) were used to provide borehole construction information. There is no mention that the borehole was perforated or grouted. The thickness of the borehole casing is assumed to be 0.313 in., on the basis of the published thickness for schedule-40, 8-in. casing.

The top of the borehole casing, which is the zero reference for the SGLS, is approximately flush with the ground surface.

Equipment Information

Logging System : 1	**Detector Type :** HPGe	**Detector Efficiency:** 35.0 %
Calibration Date : 10/1995	**Calibration Reference :** GJO-HAN-13	**Logging Procedure :** P-GJPO-1783

Logging Information

Log Run Number : 1	**Log Run Date :** 11/01/1996	**Logging Engineer:** Alan Pearson
Start Depth, ft.: 0.0	**Counting Time, sec.:** 100	**L/R :** L	**Shield :** N
Finish Depth, ft. : 26.0	**MSA Interval, ft. :** 0.5	**Log Speed, ft/min.:** n/a
Log Run Number : 2	**Log Run Date :** 11/05/1996	**Logging Engineer:** Alan Pearson
Start Depth, ft.: 150.0	**Counting Time, sec.:** 100	**L/R :** L	**Shield :** N
Finish Depth, ft. : 62.0	**MSA Interval, ft. :** 0.5	**Log Speed, ft/min.:** n/a
Log Run Number : 3	**Log Run Date :** 11/06/1996	**Logging Engineer:** Alan Pearson
Start Depth, ft.: 63.0	**Counting Time, sec.:** 100	**L/R :** L	**Shield :** N
Finish Depth, ft. : 25.0	**MSA Interval, ft. :** 0.5	**Log Speed, ft/min.:** n/a

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Logging Operation Notes:

This borehole was logged by the SGLS in three log runs. The total logging depth achieved was 150 ft.

Analysis Information

Analyst : E. Larsen

Data Processing Reference : MAC-VZCP 1.7.9 Analysis Date : 03/18/1998

Analysis Notes :

The pre-survey and post-survey field verification for the logging run met the acceptance criteria established for peak shape and system efficiency. The energy calibration and peak-shape calibration from the accepted calibration spectrum that most closely matched the field data were used to establish the peak resolution and channel-to-energy parameters used in processing the spectra acquired during the logging operation.

A casing correction factor a 0.33-in.-thick steel casing was applied to the concentration data during the analysis process because it most closely matched the reported casing thickness of 0.313 in.

Log Plot Notes:

Separate log plots show the man-made and the naturally occurring radionuclides. The natural radionuclides can be used for lithology interpretations. The headings of the plots identify the specific gamma rays used to calculate the concentrations. Uncertainty bars on the plots show the statistical uncertainties for the measurements as 95-percent confidence intervals. Open circles on the plots give the MDL. The MDL of a radionuclide represents the lowest concentration at which positive identification of a gamma-ray peak is statistically defensible.

A combination plot includes the man-made and natural radionuclides, the total gamma derived from the spectral data, and the Tank Farms gross gamma log. The gross gamma plot displays the latest available digital data. No attempt has been made to adjust the depths of the gross gamma logs to coincide with the SGLS data.

Results/Interpretations:

The man-made radionuclide Cs-137 was detected in this borehole. The Cs-137 contamination was measured continuously from the ground surface to a depth of 2 ft. Isolated occurrences of Cs-137 were detected from 3.5 to 13.5 ft, 141 to 144 ft, and at the bottom of the logged interval (149.5 to 150 ft).

Peaks in the U-238 concentration values were detected at 99.5, 123.5, and 131 ft. The K-40 concentrations increase from 35.5 to 36.5 ft. The K-40 and Th-232 concentration values increase at about 117 ft and remain elevated to the bottom of the logged interval.

Additional information and interpretations of log data are included in the main body of the Tank Summary Data Report for tank A-106.